

**Translation**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>K 50 127/3am</b>	<b>FOR FURTHER ACTION</b>	See Form PCT/IPEA/416
International application No. <b>PCT/EP2004/003881</b>	International filing date (day/month/year) <b>13.04.2004</b>	Priority date (day/month/year) <b>15.04.2003</b>
International Patent Classification (IPC) or national classification and IPC		
Applicant <b>KARL BROTMANN CONSULTING GMBH</b>		

1.	This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.
3.	This report is also accompanied by ANNEXES, comprising: <ul style="list-style-type: none"> <li>a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:             <ul style="list-style-type: none"> <li><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</li> <li><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</li> </ul> </li> <li>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</li> </ul>
4.	This report contains indications relating to the following items: <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Box No. I Basis of the report</li> <li><input type="checkbox"/> Box No. II Priority</li> <li><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li><input type="checkbox"/> Box No. IV Lack of unity of invention</li> <li><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li><input type="checkbox"/> Box No. VI Certain documents cited</li> <li><input type="checkbox"/> Box No. VII Certain defects in the international application</li> <li><input type="checkbox"/> Box No. VIII Certain observations on the international application</li> </ul>

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/003881

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-9 \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. 1-13 \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- sheets 1/1 \_\_\_\_\_ as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/003881

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	1-13	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-13	NO
Industrial applicability (IA)	Claims	1-13	YES
	Claims		NO
2. Citations and explanations (Rule 70.7)			
1. This report refers to the following documents:			
D1: DE 195 21 518 C (AIR LIQUIDE), 8 August 1996 (1996-08-08)			
D2: US 5 417 740 A (GALPERIN GRIGORI ET AL), 23 May 1995 (1995-05-23)			
D3: PATENT ABSTRACTS OF JAPAN, Vol. 1996, No. 10, 31 October 1996 (1996-10-31), & JP 8 157929 A (KAWASAKI STEEL CORP; DAIWA STEEL KK), 18 June 1996 (1996-06-18)			
2. <u>INDEPENDENT CLAIM 1</u>			
2.1 The application fails to meet the requirements of PCT Article 33(1) because the subject matter of claim 1 does not involve an inventive step (PCT Article 33(3)).			
Document D1, which is considered to be the prior art closest to the subject matter of claim 1, discloses a method for improving the energy supply to a charge of scrap, in which channels are formed in the scrap by hot oxygen-containing gas jets supplemented with natural gas or coal, and more energy is supplied via the			

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

channels. The document describes applications in which the hot air jets are positioned in the furnace wall so that they are evenly distributed around the periphery and directed towards the bath at an angle of 10°.

The subject matter of claim 1 differs from what is known from D1 in that the hot air is blown onto the scrap from above.

The object of the present invention can thus be seen as **firstly** to pass the hot reaction gases through the surrounding scrap material so that the energy from the gases is used to bring about rapid and effective melting, and **secondly** to ensure that once the scrap has melted the resulting slag is not blown onto the opposing walls and transmission of the afterburning heat is not impeded.

The solution proposed in claim 1 of the application cannot be considered inventive (PCT Article 33(3)) for the following reasons:

In document D2 the scrap is melted by lowering a centralised oxygen lance into a converter vessel (column 14, line 63 to column 15, line 1). Because the oxygen is introduced into the central zone the surrounding scrap material is heated, and at the same time the furnace lining is protected (column 6, lines 30 to 37 and 62 to 68). An excess of oxygen in and above the surrounding slag promotes afterburning and therefore ensures effective heating of the scrap (column 5, line 30 to column 6, line 19). Also, the

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
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introduction of the lance into a particular part of the converter vessel and the controlling of the oxygen rate (column 17, line 64 to column 18, line 7) allow the melting-down process to be controlled without loss of slag or energy.

A person skilled in the art would therefore be able to solve the problem of interest by combining the features of D1 and D2, without contributing an inventive step. The solution proposed in independent claim 1 cannot therefore be considered inventive (PCT Article 33(3)).

3. DEPENDENT CLAIMS 2 TO 13

Dependent claims 2 to 13 do not contain any features that meet the PCT requirements in respect of novelty or inventive step when combined with the features of any of the back-referenced claims.